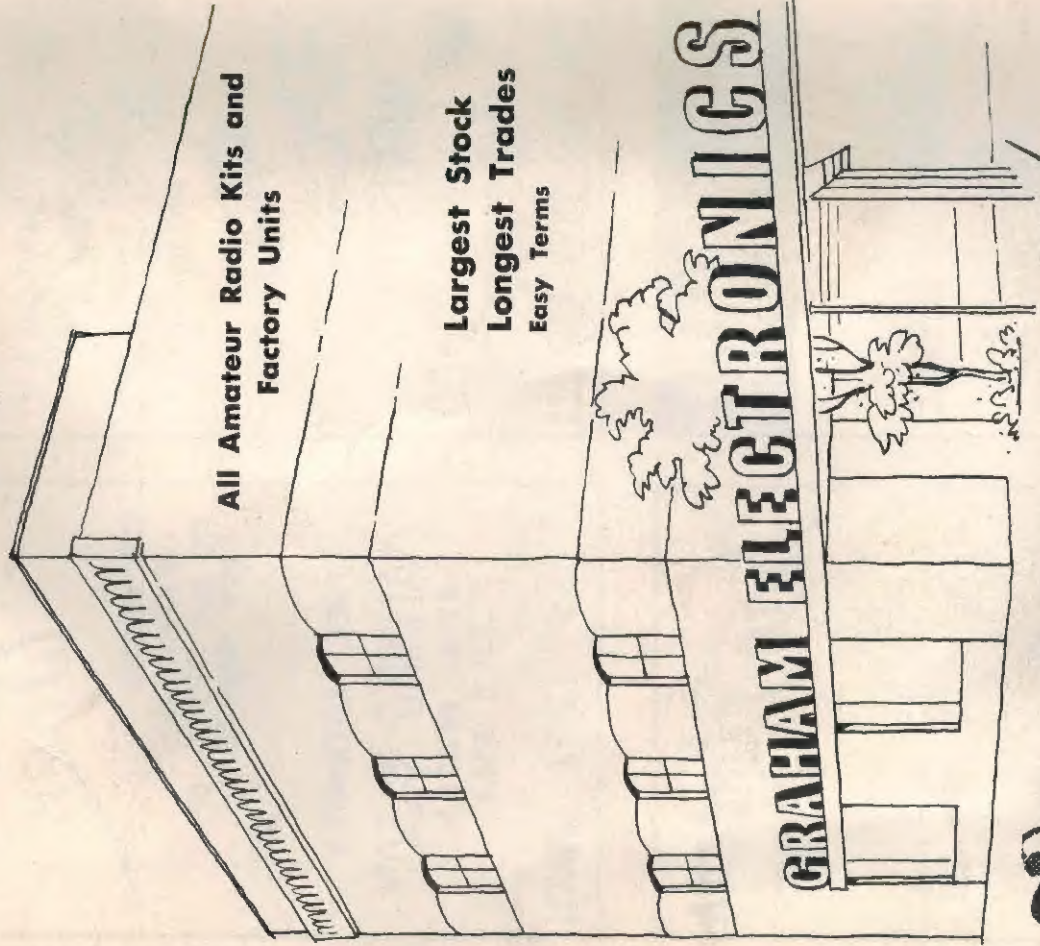


Your one stop

# HAM HEADQUARTERS



All Amateur Radio Kits and  
Factory Units

Largest Stock  
Longest Trades  
Easy Terms



**GRAHAM**

*Electronics*  
**SUPPLY, INC.**

General Phone

ME 4-8486

122 S. SENATE AVE. • INDIANAPOLIS

PLENTY OF FREE PARKING

# WOPR Amateur

AUGUST 1960

PUBLISHED BY  
INDIANAPOLIS RADIO CLUB, INC.  
FOUNDED 1916



INDIANAPOLIS RADIO CLUB, INC.  
2223 E. 74th Street  
Indianapolis 20, Indiana

To:

Robert Caskey W9DNQ  
2355 Stuart St.  
Indianapolis, Ind.

Return Postage Guaranteed  
Form 3547 Requested





**LONG TRADES  
EASY TERMS**

CONVENIENT PARKING  
PERSONAL SERVICE

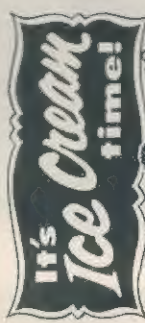
# VAN SICKLE RADIO SUPPLY CO.

4131 N. KEYSTONE  
open 9 to 6 daily



W9KJF  
Owner was IRC  
member in 1919

THE MODERN HOOSIER HOSTESS  
SERVES WHOLESOME, TASTY  
HOOSIER QUEEN ICE CREAM



**FROZ-N-FOOD INC.**  
5905 N. College Avenue

**CL 5 7030  
CLIFF W9EKD**

The Indianapolis Radio Club meets on the 2nd and 4th Friday of each month at the Indianapolis Park Board Building located at 29th and Harding Streets. Meetings start promptly at 8:00 P.M., Indianapolis time.

## AMA-CHEWER STAFF

<b>EDITOR</b>	Ben Marcel 1130 Birnam Woods Trail K9IUH VI 5-6191
<b>PUBLISHER</b>	Pat Husk 2223 East 74th Street K9EUQ CL 3-2220
<b>MANAGER</b>	Alvey Pittman 2555 West 71st St. W9JJC TR 8-8331
<b>REPORTERS</b>	B. Brouse K9JSF R. Osterhous W9PSE R. Bundy W9MEK E. Ward K9CRS R. Caskey W9DNQ H. Wolfla K9LZJ L. Easley K9QDR
<b>PHOTOGRAPHER</b>	Frank Fitch W9EJW
<b>TECHNICAL ADVISORS</b>	Cliff Singer W9SWD D. McVickers W9JZV
<b>COVER STROY</b>	Ron Williams W9JVF

\*\*\*\*\*

Ama-Chewer is published monthly by and for I.R.C. and all Amateurs in this area. Non-Members of I.R.C. may subscribe at the rate of \$1.00 per year.

Publication is on the 3rd Friday of each month, with all news items and ads due no later than the 1st Friday of each month.

Ham-Ads (5 line limit) are free to members and subscribers. Others may use this facility at the rate of 50 cents per ad.

Ama-Chewer welcomes the forwarding of information on coming events of other clubs in the area for publication in the program section.

\*\*\*\*\*

**KEN  
AMICK**

**W9NZA**

**CASUALTY  
INSURANCE**

AUTO - FIRE - HOMEOWNERS  
CH 4-2293 Res. ME 4-8571



## PROGRAM SCHEDULE

July & August There will be no meetings during July and August as is the usual custom of IRC.

July 24 Interstate Sideband Net Picnic: Pokagon State Park a few miles north of Angola, Indiana on Road #27. Come early Sunday, bring your basket dinner. All Amateur operators and their families are invited.

July 31 VHF picnic, Wabash Valley Amateur Radio Association. Sunday, Turkey Run State Park.

September 10 & 11 Central Division ARRL Convention, Claypool Hotel, Indianapolis.

September 9 Business Meeting and Pre-Convention Bull Session for visitors.

September 23 On our first program night, we have Mr. Robert Atherton, Semi-conductor Design engineer at Naval Avionics Facility to give us some more information on transistors. Bob will cover circuits and their practical application.

\* \* \* \* \*

## NOTICE OF RADIO OPERATOR EXAMINATIONS

INDIANAPOLIS, INDIANA Commercial Examinations  
August 18, 1960-9:00 A.M.

Room 526, Federal Amateur examinations  
Building August 19, 1960-9:00 A. M.  
Must be completed by 2:00 P.M.

\* \* \* \* \*

## FIELD DAY TROUBLES

Guess the Home Brew Club had generator trouble but they were prepared and proceeded to hook up their spare generator --only trouble was it happened to be a D.C. generator-- POW--did they start looking for the fuses.....

## PROGRAM REVIEW

June 10th, Fritz Manning, W9VPN, gave an excellent program on quad antennas and showed a professional looking movie of the erection of his windmill tower and tri-band quad antenna.

Fritz explained how a regular high Q beam deteriorated at a height of 10,000 feet at a South American location which began the development of the quad antenna in about 1939.

A single loop quad antenna has a feed impedance of 144 ohms and the gain is the same as a regular dipole antenna. With a double loop the impedance is about 300 ohms. For a 2 element quad with a reflector spaced .1 to .2 wave, the gain is 5.7 DB and a 3 element quad has a 7.2 DB gain over a dipole. The quad has a very low angle of radiation and can be fed to give either vertical or horizontal polarization.

The element lengths of a quad equal 1.25 times the free space wavelength or, one quarter wave equal 257 x (Freq. Mc.

The feed impedance of a tri-band single loop quad is: 20 meter, 75 ohm; 15 meter, 120 ohm; 10 meter, 140 ohm.

Fritz recommended a six meter quad be tuned at approximately 50.1 Mc and it would give about 4 DB gain at frequencies up to 52 - 53 Mc.

I am sure all who attended would agree if you have a question on a quad antenna you better ask a regular IRC member, Fritz Manning, W9VPN.

\* \* \* \* \*

## SPLATTER

Angus W9CYQ, Forbes, W9HNS, Alvey, W9JJC, left Saturday, July 2 for a 2 week cruise on the SS Angus. They left Grand Haven, Sunday and are having daily schedules with Ed Healy, W9FJR on 40 to keep in touch. Their plans are to go to Beaver Island and perhaps MacKinac, stopping at Ludington, Frankfort, South Manitou Island, Charlevoix and Harbor Springs. Alvey is going to be cook so.....! (Hope everyone survives--(Ed.).)

\* \* \* \* \*



## BEST WISHES FOR A SPEEDY RECOVERY

One of the active Field Day operators, Dick Shimer, K9VDI, had the misfortune of falling off a four story building. He broke both legs and cracked some vertabre. His address for some months to come will be Room 437, Community Hospital. Dick has his Communicator III on the air out there and can be heard over most of the city. Look for him on 6 and if possible drop in for an eyeball 1 to 8 PM anyway.

Dick Siegle brought out a Communicator III power plug from Graham's (no charge) and Ron, W9JVF installed a dipole which works pretty well considering its inside a metal frame building to help Dick get on the air.

\* \* \* \* \*

## QSL BUREAU

Some how--about 5 years ago we got real noble and wrote the W9 QSL Bureau--with a list of Marion County calls and said we would get rid of any they might be holding. It cost \$2.29 postage to get them down here! We got rid of about 80% of them finally, but anyway in a weak moment Esther got me to clean up the basement last week--and there was still some of those #%\$&¢\* \$ QSL's. Sooo--ABV, AFD, BOG, BPO, BNN, CGJ, EKM, EON, EUM, FWJ, FVJ, FFB, FLD, FSG, GPV, GHF, GHV, GND, HTB, IV, JRO, JRK, JBK, KDD, KFH, MPR, OSL, SGH, SEL, QUL, VQD, PMM, UMI, ZHS. You all give me a call, come out, or send me an envelope. They're real antiques, about 1950. Get on the good side of Esther and help me clean up.

Alvey, W9JJC  
TR 8-8331

\* \* \* \* \*

## SPLATTER

Rickey, K9KSP, has a new ? car. He thinks it is a new T-Bird but it looks like a 52 Chevy to most of the rest of us.

\* \* \* \* \*

IRC IS YOUR CLUB, SUPPORT IT, ATTEND MEETINGS

\* \* \* \* \*

## COVER STORY

In January you start getting on the Chief Operator for FD plans - He gets on you - you argue high power, low power - how many rigs - whose beam can we use, where will we go - then the 1st of June rolls around - it looks all fouled up - it looks better. Then at 0700 Saturday 24 June your still in doubt. The food - signs - gasoline - wire - etc.? Two cars drive up - another - a tent goes up - the 80 meter gang drive in with their set up, K9GEE's shiny tribander goes together - the pipe doesn't fit - a quick trip to the store for smaller pipe - it's on the 100' tower - the tower starts up - it's not level - down again and move it to a better spot. The 3 guy wire anchors are 5' too far out, up they come & in they go - its up! Ain't it pretty... My God the slack in the coax at the top is gone - its taut and 100' away! Easley K9QDR climbs it - up - up cameras clicking - a couple of hearts beating quicker then he's back safe on the ground calmer than any of us! A trip for 15 gallons of gas - then ice - cokes - more cokes and grub. Hank, K9LZJ is still bubbling over - after Friday night in his tent on the site to watch the gear already out at the Fair Grounds. Frank W9EJW recording the whole thing in pictures - the 40 meter antenna & gamma are up - a 15 meter dipole beam on Tafingers prop pitch motor tower is up - Mac's JZV 6 meter beam is up - 80 is up - lets go man--lets go--its 4:30.

Ron Rush, W9TGH & Hank, K9LZJ take off on 80 SSB with the Heath twins (Hank gets a case of "Idiot Control Fright") - Bob Good, K9PPB, Gary Hughes, K9LNX, Bob Osterhaus, W9PSF and visitor Ed White, K8EZQ from Jackson Michigan cover 40 mostly CW. Rickey K9KSP hammers away at 15 with his Heath Mobile twins with Kinnett doing the logging. The club gooney box ground away on 6 with Pat, K9EUU starting the show & Bill K9UHW, Ken Brabec, K9SGV and a whole raft of others helping. 20 was in the other trailer with Ed Healy FJR, Dick Hickok K9PUI, in the drivers seats along with Jack Wells. Frank Black W9MNA, reported everything was coming in on TWO at the same time 80-40-20-15 & 6 and threw in the towel. Well it was a good looking 2 meter beam any way.

You should have seen the 20 meter trailer when to many crowded in the aft end and the front went up in the air! Every body tumbled out and it came down out of orbit again without harm.

It was our biggest and best F.D., the cooperation was the best, the location at the Fair Grounds by the 4H building was ideal, the equipment was swell, antennas very good & the score was better than last year. (continued on page 7)



410 N.W. 117th Street  
Miami 50, Florida

Editor and Staff the Ama-Chewer:

It has been several years since I have had the pleasure to read the Ama-Chewer, and even more years since I was associated with IRC.

Recently, while vacationing in Indianapolis for the 500 mile race, my wife and I called on our good friends Martha and John Lee, W9GRE, and I was presented with the May 1960 issue of the Ama-Chewer. You can well imagine my amazement to see such a professional type publication with the long sought after advertisements, cover stories, pictures, feature stories, and of course the necessary and informative splatter.

Regarding the Ama-Chewer of yesteryear, I remember only too well the long taskful hours put in by Bob Caskey some years ago, and the equally fine work by Butch Singer, whose untiring efforts has undoubtedly set a precedent on which the current Ama-Chewer is based.

You are to be commended on your striving progress, and that state of perfection the Ama-Chewer has achieved.

Since leaving Indianapolis we have lost contact with most of our Ham friends there. Through the Ama-Chewer we could keep posted on all current events, and I would like to again subscribe to the Ama-Chewer. Enclosed please find my check to cover the subscription fee.

It would be interesting to learn how many of my friends read or see this letter, and I would very much appreciate hearing from them. How about dropping me a QSL card to say hello. I promise to answer each and every one received.

Again, congratulations to the Ama-Chewer staff on a job well done.

Best regards,  
James R. Whitmore,  
W9ZUU/4

The man at the White Castle didn't believe me at first when I ordered 40 hamburgers! How can you thank everyone who helped - equipment, labor, operators. Old McVickers our chief operator kept calm thru it all. If we omit any names we certainly don't want too but it was hard to work and be a reporter too. (reporters don't normally work!)

EQUIPMENT: Ed White, K8EZQ-Automatic Keyer; Gary Hughes, 75A1, Mikes, cables, 15 beam, etc.; CD Viking II Rickey 15 M Heath mobile twins; Ron Rush 80 SSB Heath twins & SB-10; Brouse 6 Meter VFO; Frank Black SX1100; Bill Hickok, DX-100 and matchbox; Charley Sebree, Tri-Bander and Rotator; McVicker, 6 meter beam; Lee Easley, tents & cots; Jack Wells the 2 field office trailers from the Indiana Asphalt Company; CD came in with the 100' tower and the Reluctant Draggin.

Cliff Alsop, W9EKD brought over 2 big boxes of ice cream sandwiches Sunday afternoon to everybody's delight. Man you ain't lived till you lived thru a FIELD DAY WITH THE INDIANAPOLIS RADIO CLUB.

#### HATS OFF TO

Bob Good, K9PPB  
Ed White, K8EZQ  
R. Kinnett, K9UIE  
Ron Rush, W9TGH  
Ken Brabec, K9SGV  
Hank Wolfla, K9LZJ  
A. Pittman, W9JJC  
Ed Ward, W9CRS  
Al Minnick, K9SUW  
Robt. Melton, W9UEU  
Dick Shimer, K9VDI  
Jack Wells, W9EJP  
Frank Fitch, W9EJW

Bob Osterhous, W9PSE  
Don Steinberger, K9LNT  
Lee Easley, K9QDR  
Ricky Hibbs, K9KSP  
Pat Husk, K9EUQ  
Ed Healy, W9FJR  
Doyle McVicker, W9JZV  
Bert Brouse, K9JSF  
Dick Hickok, K9PUI  
Bill Moeller, K9UHW  
Frank Black, W9MNA  
Elmer Taflinger, W9GRN  
Ron Williams, W9JVF

WE THANK YOU ALL!!!!

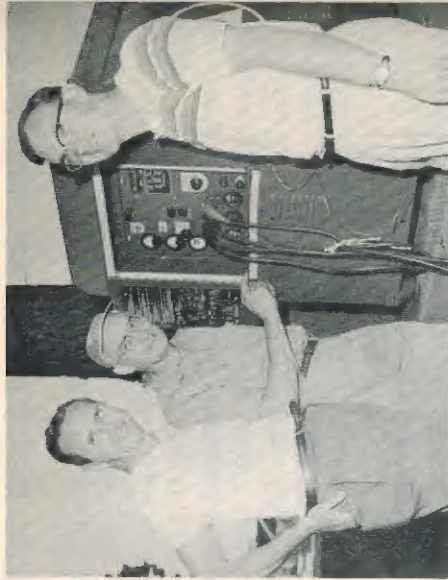
\*\*\*\*\*

A new "Ham" in town is Joe Poston, K9GCE. Joe operates on 20, CW & Phone, with Apache and NC-300.

\*\*\*\*\*



THEY LOOK SO HAPPY IT  
MUST STILL BE RUNNING??

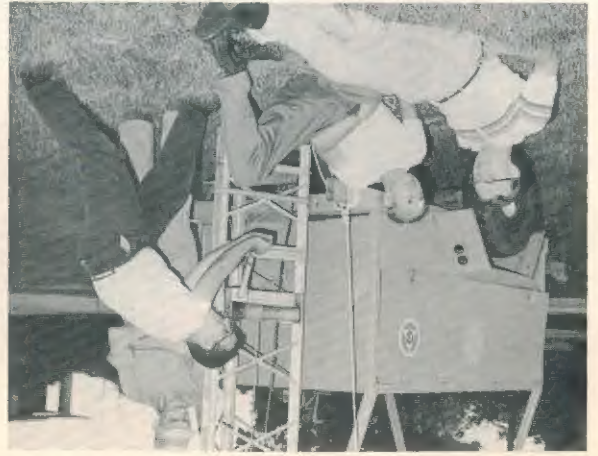
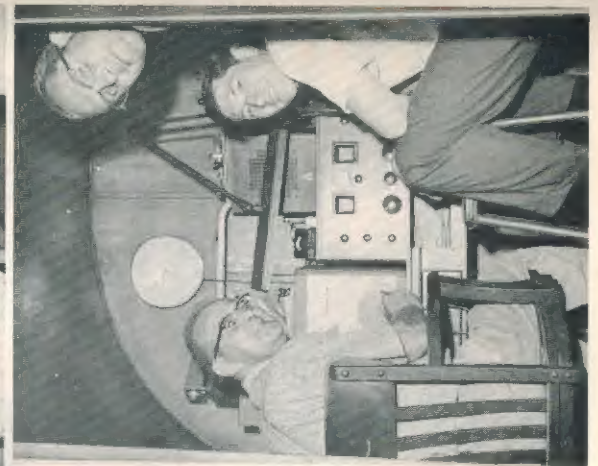


SIX METER OPERATION



Lower Right:  
THE HOT 20 METER  
CW CREW

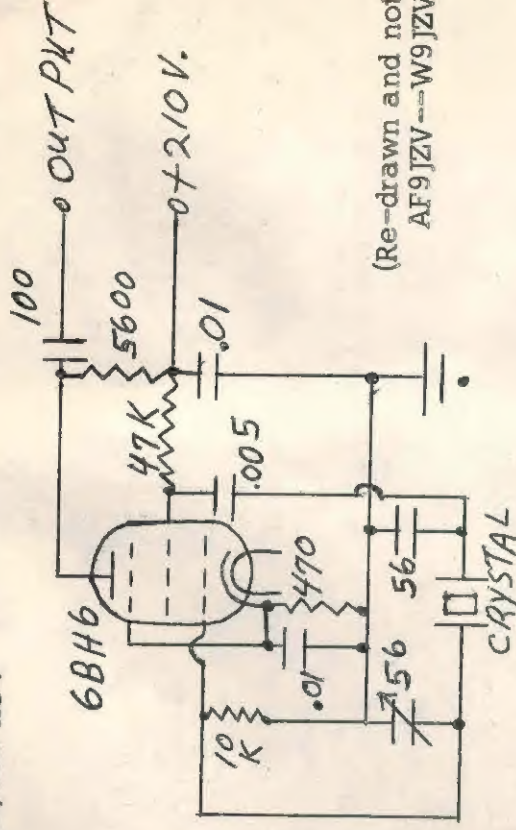
RICKEY AT HIS  
15 METER SET-UP





RECOMMENDED OSCILLATOR CIRCUIT

Fundamental type crystals for frequencies 800 KC to 20,000 KC.



(Re-drawn and notes by  
AF9JZV--W9JZV)

The above circuit will provide room temperature stability of a few cycles. Driving power will average about 5 milliwatts. The variable capacitor in the crystal/control grid circuit will enable exact frequency adjustment of the circuit. (Crystal load capacity is approx. 32 mmfd.)

\*\*\*\*\*

GRAHAMS SPECIALS FOR THE MONTH

G-50 - Gonset	Fair	\$235.00
Johnson Ranger	USED	\$175.00
Johnson Challenger	GOOD CONDITION	\$ 95.00
NC-98 National Receiver with Q Multiplier and Crystal Calibrator		\$105.00
Johnson 6N2 Transmitter		\$105.00
Drake 1A SSB Receiver		\$195.00
Heath Kit RX-1 Receiver	NEW DEMO	\$249.00
FACTORY WIRED	SPECIAL	\$150.00
G-28 - Gonset 10 M Transceiver		\$ 88.00
Glove Hi Bander (Kit New)		

\*\*\*\*\*

We spoke of transformers last issue and it wasn't at all unusual to see old pole transformers torn up to get the core which would be recut and stacked to make a new core. The windings in some cases were even hand wound and if you think that isn't something just try handwinding 3 or 4 thousand turns of #20 silk or cotton covered wire. There wasn't even as big a choice in wire coverings at that time. Then when finished units, the winding of the power and filament transformers the chokes came next and swinging chokes as such happened only by accident they were all brute force filters.

In passing it is recalled the first home brew electrolytic condensers. Thses viewed at W9BHC's ham shack were a stack of 12 aluminum pie pans stacked on 4 saw scored corner sticks so that each nested somewhat in the other but not quite touching and the void was filled with a borax solution or some secret brew of the builders. This affair was across a 500 to 1000 volt generator and did a FB job of taking the commutator ripple out. What a difference in size to the etched and fabricated plate electrolytics of today.

The author recalls his own home made paper filter condensers he made when he couldn't get the 8 bucks to buy 4 mfd 600 Volt sangamous. These condensers were made by dipping theme tablet paper in molten paraffin, letting it harden and redipping. These impregnated sheets were then stacked between sheets of cigarette tin foil, lead foil from tapes etc. with alternate ends becoming the terminals. This mess was then clamped together with strips of wooden cigar box wood and put in the output of the aforementioned slop jars. You should have heard those condensers sing as the pulsating D.C. made them vibrate like electrostatic speakers. Yes, and brave soul, putting the fingers on same you could feel, this pulsing of the dielectric.

With the above home brew equipment the transmitter wasn't a nice desk top cabinet affair, it covered one side of the bedroom. Compare that with a modern transceiver with, receiver, transmitter and their power supplies in a cabinet 8 x 8 x 6. That is inches, not feet. HI...

\*\*\*\*\*



## OUR ADVERTISERS

This is the 6th in our series of stories on our Advertisers who help bring the Ama-Chewer to you.

### HAROLD WALLMAN WALLMAN'S PHARMACY

Wall, W9NEU has a quarter century of Hamming under his hat - since getting his ticket in 1935, he doesn't remember how he got this bug - it just happened and was on 5 meters in those early days. (with Fritz VPN)

In 1939 Wall "went into business" with his own drug store at W. 16th Street and Tibbs. It was a new venture in a new store and now after more than 20 years the Wallman Pharmacy enjoys its position for a reliable prescription service. Walls choice of location was a good one and the neighborhood is still growing. As in all "Drug Stores" there is more than drugs and he has it. From his ad you have noticed he has a professional tube checker (which takes some instructing for some customers he says.) There is a well stocked section for Film, Flash Bulbs, Cameras, etc. for you who have the shutter bug virus.

You can stop for a bite and eat too at the shoppers lunch counter - have a malt and start getting fat! Walls son is a graduate pharmacist and works with his dad in the store.

If you stop in to see Wall and he's out - look up on Lake Manaton at his summer home or out on the lake for a Century - with a 112 Horse inboard - (with out radio) he will be cutting Hula Hoops out there.

Back in Indianapolis you'll find W9NEU in his attractive home on N. Kessler Blvd. under a Mosley Tribander with an Elmac rig and a RME 45 receiver on 10 M.

Next time you need film or any of the 1000 of items in stock ask for W9NEU and introduce yourself and tell him "Ama-Chewer" sent you.

\* \* \* \* \*

CORRECTION (GUESS WE DON'T GET IT ALL STRAIGHT  
ASST. ED.)

PLEASE NOTE: INDIANA SSB NET MEETS EVERY  
NIGHT OF THE YEAR AT

7:30 P.M., EST, 3920 KC.

## PROGRAM REVIEW

The final program meeting of the summer was on a popular subject - SINGLE SIDEBAND and an avid SSB enthusiast, Rolly Boughton, W9PMM was our speaker. A very informative type question and answer meeting was conducted with leading questions from other sideband operators such as Alvey W9JJC. PMM explained that SSB was 4 times more powerful than AM and likewise more efficient i.e. for a given power input more speech power is transmitted.

Due to the use of linear amplifiers and driver stages in SSB there is less TVI. Phasing rigs seem to provide a better audio quality on SSB and a basic circuit is shown in March, 1956 QST of an exciter unit, another very popular rig is the W2EWL unit. Because of the nature of the voice peaks and pulses transmitted by SSB the voice peaks and pulses transmitted by SSB amplifiers, light duty power supplies can be used and large capacitor filters with silicone diodes as rectifiers eliminating filament transformers, bulky plate transformers, etc.

These advantages plus running tubes in a grounded grid arrangement to eliminate bias and screen supplies make a KW SSB amplifier with power supply as compact as a standard receiver, truly a table top type kilowatt.

Rolly mentioned the use of sideband slicers and that a BC-453 modified to incorporate a product detector works excellent with older receivers, etc. Remember the main advantage of SSB is to put more QSO's per ham band and if you have listened on 20 they are about every 3 KC---did you ever hear AM stations every 3 KC???

Now that you have heard some of the facts why don't you join the group for frequency saving QSO's?

\* \* \* \* \*

### A NOVICE KILOWATT???

Your publisher has been advised by Gary Hughes, K9LNX and Lee Easley, K9QDR that it would be legal for a novice to run a full gallon under certain conditions. Namely if a transmitter could be developed that would handle the power if would be legal for a novice to use it inasmuch as the official FCC rules state that the input to the vacuum tube of the final stage of a xmtr. must not exceed 1000 watts and says nothing about semi-conductors.



FIELD DAY RESULTS OF LOCAL CLUBS

Club	80M	40M	20M	15M	6M	Total
Allison	1026	120	954	-0-	252	2352
Home Brew	*498	*	*	-0-	696	1194
I.R.C.	1590	1182	870	414	909	4965
R.C.A.	-0-	1632	732	-0-	690	3054
W.E.A.R.C.	1080	2142	786	678	1080	5766

\*Score is combined operation on 80-40-20 meter bands.

The above report does not include all of the usual problems of field day but if you thought you had trouble you had better talk to Don, W9MHP or some of the boys at the mobile club. Seems as though they had carbureator and fuel pump problems plus starter motor trouble with the 5 KW generator, got a late start, couldn't hear anything on 6 meter halo, Sunday morning the 75 meter rig's power supply blew up, etc., etc., so the 10 operators tore down early and didn't remember how many they worked....and you thought you had trouble?

\*\*\*\*\*

PLAYING THE GAME

A National Recreation Association study shows that persons with hobbies are better adjusted than those without. Those with hobbies "take leisure as an opportunity to accomplish things they haven't had time for in the past."

\*\*\*\*\*

WHO'S GOING WHERE ON VACATION

Caskey DNQ, has left on a 10 day camping trip, destination unknown even to Caskey??

Hank LZJ, left July 8th for Wild Rice Lake, Wisc. taking SIXER and 100 Watt 80 meter rig for CW.

Ben Marcel, K9IUH will soon be returning from The Northland Lodge at Pelican Lake near Orr, Minn. where he spent his weeks vacation.

\*\*\*\*\*

FOR SALE:

- National NC 109 Receiver with NTS-1 Speaker \$150.00
- Paco Push Pull Oscilloscope Model S-50 5" 63.50
- Heathkit Citizens Band Transceiver CBI 45.75
- EICO Sine & SQ Wave Gen. Mod. 377, Ser. #6714 40.00
- Heathkit Signal Generator Model S.G. 8 17.00
- Paco Wired Model 40W (Volt-Ohm-Milliammeter) 29.00
- Paco Vacuum Tube Voltmeter Model 70W 40.00
- Paco Model 280 RF - AF Signal Tracer 32.00
- Heathkit Vibrator Power Supply Mod. VP 1-12 7.50
- Heathkit Vibrator Power Supply Mod. VP 1-6 10.00
- CBU-1 Heath Antenna 9.00
- EICO R.C. Bridge & RCL #950B Comparator 22.50
- EICO R-C Combination Box #1140 15.00
- Precision Tube Checker Model 660 80.00

Mrs. Pauline D. Cox  
640 N. Somerset Ave.  
Melrose 8-5353

FOR SALE: DX-35 Heathkit Transmitter

QF-1 Heathkit Q Multiplier-In Good Condition-  
Both for \$45.00

Thomas D. Marshall, K9OPB  
5619 E. 38th Street  
Indianapolis 18, Indiana

\*\*\*\*\*

REPORT ON BLIND SCHOOL PROJECT

Caskey, W9DNQ drove up to Dayton, Ind. the 5th of July and took his BC-348 receiver for blind student Ray Warren to use for the rest of the summer. Ray reported he had not yet heard from the FCC on his novice ticket but was really itching to get to work. He has been busy getting his show rabbits ready for 4H judging.

Jacob Worley, W9CMQ who recently moved out just north of Cumberland called W9DNQ and said he had a transmitter for the blind school club project. DNQ has picked up the gear which is a FB power supply for the millen type transmitter which CMQ also gave for the blind school station. Also promised is a surplus cabinet from RCA to house the above gear. A fine start for the school and many thanks to Jake for this equipment. Several have offered money towards purchasing a receiver so a good start has certainly been made towards getting these folks on the air.





I'LL SEE IF I CAN GET ED  
TO SHOW YOU HIS QSL COLLECTION.

**WALMAN'S  
SYSTEMS**

AIR AND HYDRAULIC  
COMPONENTS  
SPECIALIZED ENGINEERING-  
SERVICE FOR YOUR  
APPLICATIONS



TIMERS  
AND CONTROLS  
FOR AUTOMATION

**INDUSTRIAL  
AIR EQUIPMENT CO.**  
2047 EAST 46TH  
CL 1 9406

ASK FOR BOB W9PSE

**Expert Body  
Work**

33 YEARS  
EXPERIENCE OF  
ON ALL TYPES OF  
BODY REPAIR

FREE ESTIMATES

**MANNING & SON**  
4718 BERTHA  
CH 4 4344

SEE FRITZ W9VFN

**Wallman's Pharmacy**

RELIABLE  
PRESCRIPTION SERVICE

DISCOUNT %  
ALL FILMS & CAMERAS

TV & RADIO TUBES  
CHECKED FREE  
ON OUR PROFESSIONAL TUBE CHECKER

3357 WEST 16TH AT TIBBS  
ME 1 8844  
WALL W9NEU

**Fire Flowers**  
FOR EVERY  
OCCASION



CITY WIDE  
DELIVERY

COMPLETELY  
DEPENDABLE SERVICE

**SCHWOMEYER  
FLORIST**

1844 SHELBY  
ST 6 9253

ROY W9YMV